

# A NEW STREAM-DWELLING *LITORIA* FROM THE MELVILLE RANGE, QUEENSLAND, AUSTRALIA

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*Litoria andürrmalin* sp. nov. (Anura: Hylidae) is described from streams amongst boulders in Cape Melville National Park, Queensland. It is a large, mottled brown species with unwebbed fingers, extensively webbed toes and distinct supratympanic fold; females have pigmented eggs. The species is found in boulder areas around riffles in streams. Morphologically it cannot be referred to any recognised Australian hylid species group. □ *Frog*, *Hylidae*, *Litoria*, *Queensland*, *Litoria andürrmalin*.

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During botanical surveys in Cape Melville National Park on Cape York Peninsula, Queensland in 1993, a specimen of unidentified hylid frog was caught along a rocky, rainforest stream by J.P. Stanton. Examination of the juvenile specimen indicated it was possibly an undescribed species. In May 1994 the opportunity to re-visit the collection site was made possible during a botanical survey led by D.G. Fell. Adult specimens were collected and the species was confirmed as undescribed. The species is described in this paper. It is a hylid frog of the genus *Litoria* having expanded finger and toe discs with a distinct notch, horizontal pupil and no palpebral venation on the lower eyelids.

Methods of measurement follow Tyler (1968). Measurements were made using dial calipers reading to an accuracy of 0.1mm. Measurements were: S-V, body length from snout to vent; TL, tibia length; HL, head length; HW, head width; E-N, eye to naris length; IN, internarial span; E, eye diameter; T, tympanum diameter. Specimens are lodged in the Queensland Museum, Brisbane (QMJ), Australian Museum, Sydney (AMR) and the South Australian Museum, Adelaide (SAMR).

## *Litoria andürrmalin* sp. nov.

*Litoria* species, Frith and Frith, 1995: 233.

MATERIAL EXAMINED. HOLOTYPE: QMJ59000 adult ♀, collected by K.R. McDonald, J.A. Ledger and D.G. Fell at 280m, 2 May 1994 at Temple Ck on the eastern slopes of the Melville Range, Cape Melville National Park (144°31'E, 14°16'S). PARATYPES: QMJ59001-008, AMR144391, SAMR44463 same data as holotype, QMJ59009 collected by J.P. Stanton and D.G. Fell, 21 July 1993 at type locality.

DIAGNOSIS. A large species (preserved specimens 93-102mm N=5; field measurements of live animals; ♀♀ 92.3-109.7mm, N= 6; ♂♂ 66.1-75.6mm, N=9, S-V) characterised by widely expanded finger and toe discs; moderately long hindlimbs; unwebbed fingers; extensively webbed toes; absence of dermal glands; strong supratympanic fold; in life mottled brown with irregular cream markings and pale dorsolateral stripe from eye bulge to groin.

DESCRIPTION OF HOLOTYPE. Head flattened, slightly broader than long (HL/HW 0.90); head length about 1/3 snout to vent length (HL/S-V 0.35).

Snout not prominent, slightly rounded in profile, canthus rostralis distinct, slightly curved. Nostrils lateral, their distance to snout slightly less than distance between eye and naris (E-N/IN 1.46).

Eye prominent, slightly larger than eye to naris distance. Tympanum large with narrow annulus, diameter 0.6 width of eye. Vomerine teeth on two large elevations between posterior margin of choanae. Tongue broadly oval.

Fingers moderately long, slender and unwebbed; finger lengths 3>4>2>1; terminal discs large.

Hindlimbs moderately long (TL/S-V 0.57); toe lengths 4>3>5>2>1. Web reaches base of terminal disc on all toes except 4th; reaches top of subarticular tubercle at base of penultimate phalanx on 4th toe; prominent inner metatarsal tubercle; no outer metatarsal tubercle.

Skin of dorsum smooth. Strong supratympanic fold extends beyond superior margin of tympanum. Ventral surface coarsely granular. In life dorsum mottled brown with irregular cream

markings and an indistinct pale dorsolateral stripe from eye bulge to groin; posterior ventral surface cream, throat faintly greyish to junction of arms.

Dimensions of the holotype in mm: S-V 99.44; HL 35.14; HW 39.14; TL 56.38; E-N 10.46; IN 7.2; E 10.48; T 6.24.

**VARIATION.** The overall proportions of the 11 paratypes are similar (HL/HW 0.90-1.11; HL/S-V 0.34-0.40; E-N/IN 1.19-1.79). Hand and toe webbing has no detectable variation. In life low tubercles on the back, eye bulge and around the nostrils are evident in some animals.

The juvenile frog (QMJ59009) has a distinctly dark throat with a pale line on the mid-throat. The dark throat pales to a light grey in adults. In life a dorsolateral stripe extends from the eye bulge to groin, becoming less distinct in larger frogs. Juveniles are light cream with dark markings laterally. These fade with increasing size.

Males possess dark brown, glandular nuptial pads and lack a vocal sac.

**ETYMOLOGY.** The specific name, *andiirmalin*, is from the Barrow Point Aboriginal language, Gambilmugu, for the frog (Roger Hart pers. comm., Aboriginal elder and cultural informant). Mr Hart explains that in local tradition the frogs are people who have been transformed as punishment for breaching certain rules. The species and habitat are believed to be culturally sensitive by Aboriginal people of the area.

**COMPARISON WITH OTHER SPECIES.** The combination of large size, no webbing on the slender fingers, full webbing on the toes, strong supratympanic fold and colouration is not shared by any species groups defined by Tyler & Davies (1978). The general appearance of body shape when first observed is similar to *Litoria caerulea*. However *L. andiirmalin* lacks the large parotoid glands and finger webbing of *L. caerulea*. Members of the *Litoria citropa* species group have moderately long, slender unwebbed fingers like *L. andiirmalin* but do not possess full toe webbing or a well-defined supratympanic fold and are much smaller.

#### NATURAL HISTORY

*Litoria andiirmalin* was observed near cascades and riffles but not pools, in perennial streams above 60m in the Melville Range. The streamside vegetation is mesophyll vine forest with Melaleuca emergents occurring as gallery forest. Large granite boulders and bedrock of the Permian Altonmoui Granites are a feature of the stream habitat.

The frog was observed on rocks, vines and twigs adjacent to broken water. It did not jump into the stream to escape when disturbed but preferred to climb under boulders or into vegetation. When placed in running water or pools the frog immediately swam to the bank, and jumped into the adjacent habitat. It did not attempt to escape into the stream like stream frogs of the Wet Tropics Biogeographic Region (e.g., *Litoria nannotis*, *Taudactylus acutirostris*, unpubl. obs.).

A ♀ (QMJ59002) had small (1mm) pigmented eggs in May 1994. Other ♀♀ observed in the field in October, 1994 and November, 1995 also had eggs. ♀♀ examined in mid to late February 1995 had no eggs suggesting breeding takes place between early December to mid February coinciding with the onset of the monsoonal wet season. ♀♀ carry eggs at least from May to at least the onset of the monsoon season. Similar carrying of eggs outside the breeding season has been documented (McDonald & Davies 1990).

Males were calling in late November, 1995. The call sounds like tapping with a stick on a piece of bamboo, a rapid, gentle 'toc toc toc toc'. No calling was heard in other months.

No tadpoles of any species were observed in the stream or pools in May, October, November or February. An undescribed species of *Cophixalus* was located in the boulders adjacent to the stream habitat of *L. andiirmalin* and adult *Rana daemeli* and *Litoria infrafrenata* were observed in the same stream habitat. In February 1995 *L. infrafrenata*, *L. caerulea* and *R. daemeli* were calling near and adjacent to the stream whilst juveniles of *L. andiirmalin* and *R. daemeli* were present in May and October also indicating possible monsoonal-season breeding.

Examination of contents of two faecal pellets deposited overnight disclosed a leaf, an unidentifiable small frog, freshwater prawn legs (*Macrobrachium* sp.) and beetle remains. Flushed stomach contents from five frogs revealed a litter skink *Lygisaurus* sp., coleopteran larva, beetle and cockroach remains.

#### DISTRIBUTION AND CONSERVATION STATUS

The species is restricted to streams in the Melville Range which is part of the greater Laura Basin, and an area of higher rainfall than the adjacent areas of Cape York. This is especially so on the coast which is influenced by the orientation of the coastal ranges and prevailing south east winds. The Melville Range in Cape Melville Na-

tional Park is a distinct geological feature of Altonmoui granites supporting a unique combination of rainforest and sclerophyll forest communities with affinities closer to the McIlwraith Range than to the Wet Tropics biogeographic region (J.P. Stanton, pers. comm.). The greater Laura Basin, including the eastern escarpments and isolated ranges largely in Starke Pastoral Holding and the dune system of Cape Flattery, includes endemic species of skinks found on sandstone, granite or silica sands — *Lerista ingrami*, *Ctenotus quinkan*, *Ctenotus rawlinsoni*, *Ctenotus nullum*, *Carlia dogare* and *Cryptoblepharus fulmi* and a boulder-inhabiting frog, *Cophixalus* sp. nov.

The geological formations, vegetation types and climatic conditions are atypical for Cape York and Wet Tropics biogeographic regions (Stanton & Morgan 1977) indicating that the area should be recognised as a distinct biogeographic region, as reflected in the unique assemblages and endemic species of fauna and flora.

The habitat of *Litoria andirimalin* is restricted within a conservation land tenure which is not threatened at this stage. The conservation status would be 2R (rare and restricted to less than 100km) using the criteria of McDonald et. al. (1991). Other species endemic to the Melville Range are the skink *Cryptoblepharus fulmi* (Roberts 1994), an undescribed frog *Cophixalus* sp., the Foxtail Palm (*Wodyena bifurcata*) and the tree *Acmenosperma pringlei*.

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